

CLAIMS

WHAT IS CLAIMED IS:

1. A method of making a light source, comprising the steps of:
5 forming a first optical component comprising a phosphor material in fixed relation to a first multilayer interference reflector;
providing a second optical component comprising an LED capable of emitting light that excites the phosphor material; and
10 positioning the first optical component to receive emitted light from the second optical component.
2. The method according to claim 1, wherein the forming step comprises forming a first optical component comprising a phosphor material in fixed relation to a first flexible multilayer interference reflector.
- 15 3. The method according to claim 1, wherein the forming step comprises forming a first optical component comprising a phosphor material in fixed relation to a first polymeric multilayer interference reflector.
- 20 4. The method according to claim 1, wherein the forming step comprises forming a first optical component comprising a phosphor material comprising an adhesive material in fixed relation to a first multilayer interference reflector.
5. The method according to claim 1, wherein the forming step comprises forming
25 a first optical component comprising a phosphor material in fixed relation to a first multilayer interference reflector comprising alternating layers of a first and second thermoplastic polymer, and wherein at least some of the layers are birefringent.

6. The method according to claim 1, wherein the forming step comprises laminating the phosphor material to the first multilayer interference reflector to form a phosphor-reflector assembly.
- 5 7. The method according to claim 1, wherein the forming step comprises coating the phosphor material on the first multilayer interference reflector to form a phosphor-reflector assembly.
8. The method according to claim 1, wherein the forming step further comprises
10 disposing a second multilayer interference reflector in fixed relation to the phosphor material.
9. The method according to claim 1, wherein the forming step comprises embedding the phosphor material and the first multilayer interference reflector in an
15 optically transparent potting material.
10. The method according to claim 1, wherein the forming step comprises forming a first polymeric multilayer short-pass or long-pass reflector.
- 20 11. The method according to claim 1, wherein the forming step comprises forming a second polymeric multilayer short-pass or long-pass reflector.
12. The method according to claim 1, wherein the forming step comprises forming a first polymeric multilayer long-pass reflector, and a second polymeric multilayer
25 short-pass reflector.
13. The method according to claim 1, wherein the forming step comprises forming a layer of phosphor material.

14. The method according to claim 1, wherein the forming step comprises forming a discontinuous layer of phosphor material.
15. The method according to claim 1, wherein the forming step comprises forming
5 a plurality of dots of phosphor material.
16. The method according to claim 15, wherein the forming step comprises forming a plurality of dots of phosphor material, each dot having an area of less than 10000 microns².
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17. The method according to claim 15, wherein the forming step comprises forming a plurality of dots which comprise phosphor material that emits red, green and blue light when illuminated with excitation light.
- 15 18. The method according to claim 1, wherein the joining step comprises mating the first optical component with the second optical component.
19. An LED component comprising;
an optically transparent body;
20 a first multilayer interference reflector disposed on or within the optically transparent body; and
a phosphor material disposed on or within the optically transparent body.
20. The LED component according to claim 19, wherein the first multilayer
25 interference reflector comprises a first flexible multilayer interference reflector.
21. The LED component according to claim 19, wherein the first multilayer interference reflector comprises a first polymeric multilayer interference reflector.

22. The LED component according to claim 19, wherein the phosphor material comprises an adhesive material.
23. The LED component according to claim 19, wherein the first multilayer interference reflector comprises alternating layers of a first and second thermoplastic polymer and wherein at least some of the layers are birefringent.
24. The LED component according to claim 19, wherein the phosphor material is coated on the first polymeric multilayer interference reflector.
25. The LED component according to claim 19, wherein the phosphor material is laminated on the first polymeric multilayer interference reflector.
26. The LED component according to claim 19, further comprising a second multilayer interference reflector disposed on or within the optically transparent body.
27. The LED component according to claim 26, wherein the phosphor material is in layer form and wherein the second multilayer interference reflector is adjacent the layer of phosphor material opposite the first multilayer interference reflector.
28. The LED component according to claim 19, wherein the first multilayer interference reflector is a short-pass or long-pass reflector.
29. The LED component according to claim 26, wherein the second multilayer interference reflector is a short-pass or long-pass reflector.
30. The LED component according to claim 26, wherein the first multilayer interference reflector is a long-pass reflector and the second multilayer interference reflector is a short-pass reflector.

31. The LED component according to claim 19, wherein the optically transparent body has a first surface adapted to couple with a light emitting surface of a light emitting diode.
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32. The LED component according to claim 19, wherein the optically transparent body has a first surface adapted to be optically coupled with a light emitting surface of a light emitting diode.
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33. The LED component according to claim 19, wherein the phosphor material is a discontinuous layer.
34. The LED component according to claim 33, wherein the discontinuous layer of phosphor material is a plurality of lines of phosphor material or a pattern of phosphor material.
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35. The LED component according to claim 33, wherein the discontinuous layer of phosphor material is a plurality of dots of phosphor material.
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36. The LED component according to claim 35, wherein the plurality of dots of phosphor material each have an area of less than 10000 microns².
37. The LED component according to claim 35, wherein the plurality of dots comprise phosphor material that emits more than one color when illuminated with excitation light.
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38. The LED component according to claim 35, wherein the plurality of dots comprise phosphor material that emits red, green and blue light when illuminated with excitation light.

39. The LED according to claim 35, wherein at least a first phosphor dot emits light at a first wavelength and a second phosphor dot emits light at a second wavelength different than the first wavelength.

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